

# Rapid GMO Testing

# QuickStix™ for QuickScan™

## WHAT IS A GM CROP?

Genetically modified organisms (GMO) are developed using modern biotechnology. These GM or “biotech” crops exhibit unique agronomic traits (e.g., herbicide tolerance or insect resistance) due to the production of a “novel protein” coded by the DNA fragment that is added to the original plant genome.

## WHY TEST FOR GMOS?

Some resistance to the use of this technology does exist. In response to varying levels of acceptance, several countries have adopted regulations requiring that food/feed prepared from GM ingredients be labeled as such.

## HOW IS GM CONTENT DETECTED?

GM content can be determined by methods that detect either the novel protein or the inserted DNA. Current detection of the novel proteins in GM crops relies almost exclusively on the application of immunoassay technology.

Immunoassays are based on the reaction of an antigen with a specific antibody to give a result that can be measured. There are many different immunoassay formats, but enzyme-linked immuno-sorbent assays (ELISA) and lateral flow device (LFD) strips are the most commonly used for GM detection.



**QuickStix** are the easiest way to detect GMOs in grains. The tests received USDA/GIPSA approvals after a thorough inter-laboratory performance study comparing QuickStix to PCR testing. EnviroLogix offers the most comprehensive portfolio of LFD solutions for the rapid detection of every GM grain including:

**Corn**  
**Rice**

**Soybean**  
**Cotton**

**Canola**  
**Alfalfa**

Tests are performed using a rapid and straightforward protocol that requires only tap water.



When used along with the EnviroLogix QuickScan System, mycotoxin detection becomes quantitative and fully traceable. QuickScan is self-calibrating and easy to use. The flexible analysis software allows for simultaneous testing of many samples – test for mycotoxins and GMOs on the same system. Results can be documented, saved and shared.

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## KIT FORMAT EXAMPLES:

### Quantitative QuickComb™ Corn (10 strips) for QuickScan


Kit for measuring 10 GMO traits. Each kit contains 100 tests: 20 pouches of 5 LFD combs, pipettes and reaction vessels. Kits for single trait/event are also available. Each single trait kit contains: 100 LFD strips, reaction vials, transfer pipettes.

Protein/Trade Name	Sensitivity
Cry1Ab/Bt11, YieldGard Corn Borer	0.8% (~6 kernels in 800)
Event 603/Roundup Ready	0.5% (4 kernels in 800)
Cry3Bb/YieldGard Rootworm	0.5% (4 kernels in 800)
Cry1F/Herculex I	0.5% (4 kernels in 800)
T25/Liberty Link	0.5% (4 kernels in 800)
Cry34/Herculex RW	0.5% (4 kernels in 800)
mCry3A/Agrisure RW	0.9% (~8 kernels in 800)
Cry2A/in SmartStax (MON89034)	0.9% (~8 kernels in 800)
Vip3A/Viptera	0.25% (2 kernels in 800)
eCry3.1Ab/Duracade	0.1% (~1 kernel in 800)



### Quantitative QuickComb Soybean (3 strips) for QuickScan

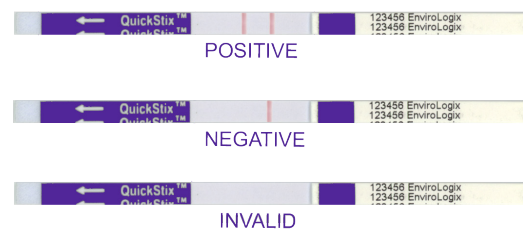
Kit for measuring 3 GMO traits. Each kit contains 100 tests: 20 pouches of 5 LFD combs, pipettes and reaction vessels. Kits for single trait/events are also available, either in presence/absence or quantitative format.



Protein/Trade Name	Sensitivity
CP4 EPSPS / Roundup Ready	0.25% (1 soybean in 400)
DMO / RR2 Xtend	0.25% (1 soybean in 400)
PAT/pat / LibertyLink	0.5% (1 soybean in 200)

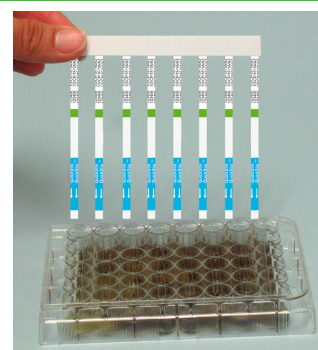
### Presence/Absence QuickStix

Kits for fast GMO detection in bulk samples. Each kit contains 100 tests: 2 canisters of 50 LFD strips, buffer (if required), pipettes and reaction vessels. Tests are available for Corn and Soy (see GMO events above) but also for the following crops/events: Cotton (CP4 EPSPS, 2mEPSPS; PAT/bar; Cry1A, Cry2A, Cry1F, Vip3A, DMO); Rapeseed/canola (CP4 EPSPS, PAT/pat); Rice (PAT/bar); Alfalfa (CP4 EPSPS)



### Seeds/Leaves GM confirmation ComboComb™

Kits for confirming GMO presence in seeds and plant tissues. The Combo Comb format makes seed quality testing even faster by having 8 LFD strips on one comb device. Every kit contains 6 combs. Single strip format is also available. Tests are available for the following traits: Corn (CP4 EPSPS, PAT/pat, Cry1A, Cry2A, Cry3Bb, Cry1F, Vip3A, Amylase, eCry3.1Ab, Cry34Ab, CspB, mCry3A); Soy (CP4 EPSPS, DMO, PAT/pat, AAD-12); Rapeseed/canola (CP4 EPSPS, PAT/pat); Cotton (CP4 EPSPS, 2mEPSPS, PAT/bar, DMO, Cry1A, Cry2A, Cry1F, Vip3A, AAD-12); Alfalfa (CP4-EPSPS)



### Seeds/Leaves GM confirmation Multi-Trait QuickStix

QuickStix strips, used for field leaf testing or seed quality testing in the lab, have 2, 3, 4 or 5 test lines for different traits (+1 control line). Testers only need to make one sample preparation, use one test strip and get multiple results. In particular, test strips distinguishing up to five analytes can be used to confirm (or rule out) countless combinations and stacks of traits. Each kit contains 100 LFD test strips.

